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Miss Mary F. Winston, Ph. D., has been elected Professor of Mathematics at the Kansas State Agriculturist College, Manhattan, Kansas.

Prof. E. D. Roe, Jr., Assistant Professor of Mathematics in Oberlin College, is taking a two years course in mathematics, in Göttingen, Germany.

Professor D. A. Lehman, the past year Professor of Mathematics in the College of the Pacific, has been called to the Chair of Mathematics in the Balwin University, Berea, Ohio.

The biography of Professor J. J. Sylvester which appeared in the June-July number of the MONTHLY has been translated in Russian and published by Professor Vasiliev, the great Russian Mathematician.

We regret to record the death of one of our valued contributors, De Volson Wood, Professor of Mechanical Engineering at the Steven Institute of Technology, Hoboken, N. J., on June 27, at the age of sixty-five years. We take pleasure in giving our readers a short account of his life in this issue.

We are pleased to state that we have in our hands Dr. Lovett's first article on Sophus Lie's Transformation Groups, which will surely appear in our next issue. It is Dr. Lovett's purpose to make the series of articles very elementary at first and thus bring this most important subject within the comprehension of the most of our readers. These articles alone will be worth many times the price of subscription to the MONTHLY.

BOOKS AND PERIODICALS.

The Non-Regular Transitive Substitution Groups whose Order is the Product of Three Unequal Prime Numbers. Reprint of a paper in *Vierteljahrsschrift der Naturforschenden Gesellschaft in Zürich*. By Dr. G. A. Miller, Paris, France. 6 pages. B. F. F.

A History of the United States. By Allen C. Thomas, A. M., Professor of History in Haverford College, Penn. 8vo. cloth and leather back. 418 and lxxiv pages. Boston : D. C. Heath & Co.

This is the best school history of the United States that has yet been published. B. F. F.

The Tutorial Statics. By William Briggs and G. H. Bryan. 260 pages. Price, \$1.00. London : W. B. Clive. New York : Hinds and Noble.

The plan of this work is good and the execution satisfactory. With the exception of some looseness of statement in certain paragraphs, the work is well written and should prove serviceable for class use. There are many valuable hints, explanations and alternative proofs, and a large selection of examples, throughout the text. An excellent summary of results follows each chapter. J. M. C.

Grammar School Arithmetic by Grades. Edited by Eliakim Hastings Moore, Ph. D., Head Professor of Mathematics, The University of Chicago. 8vo. cloth. 352 pages. Price, 60 cents. Chicago : American Book Co.

Some of the prominent features of this work are, the accurate definitions of terms according to modern usage, the use throughout of the inductive or laboratory method, the numerous well selected problems, and the entire absence of rules. The treatment of arithmetic as given in this book is a definite departure from the old ruts, and we believe that the timely appearance of this work will go far towards correcting many of the vicious and unwholesome methods pursued in many schools.

B. F. F.

Elementary Text-Book of Physics. By Prof. Wm. A. Anthony, formerly of Cornell University, and Prof. Cyrus F. Brackett, of Princeton University. Revised by Prof. William Frances Magie, of Princeton. Eighth edition, revised. 8vo. cloth. 512 pages. Price, \$3.00. New York and London : John Wiley & Sons.

This work deserves especial praise for the direct and logical manner in which it discusses the fundamental principles of Physics. The pictorial representations of apparatus are purposely omitted as are also the illustrations of the fundamental principles by detailed description of special methods of experimentation and of devices necessary for their applications in the arts, and thus space is saved for the discussion of important principles.

The work is admirably adapted to those schools and colleges having a large collection of apparatus, but for those that have but few pieces of apparatus, the absence of pictorial representations in a text book would in many cases leave the student without any ideas at all as to their construction.

B. F. F.

Theory of Physics. By Joseph S. Ames, Ph. D., Associate Professor of Physics and Sub-Director of the Physical Laboratory in Johns Hopkins University. Crown 8vo. cloth. 514 pages. Price, \$1.60 ; by mail, \$1.75. New York : Harper and Brothers.

"To present successfully the subject of Physics to a class of students, three things seem to me as necessary : a text-book, a course of experimental demonstrations and lectures, accompanied by recitations, and a series of laboratory experiments, mainly quantitative, to be performed by the students themselves under the direction of instructors. I place "text-book" first, because for many reasons I believe it to be the most important of the three. None but advanced students can be trusted to take accurate and sufficient notes of lectures ; and a text-book which states the theory of the subject in a clear and logical manner so that recitations can be held on it, seems to me to be absolutely essential." *Preface.*

This work which has just recently been issued discusses in a most satisfactory manner, the latest discoveries made in Physics. The doctrines of energy are stated with the utmost clearness and are made the framework for a consecutive treatment of Physics as a whole. The strong points in favor of this book are too numerous to mention in the limited space at our disposal.

B. F. F.

The New Arithmetic. Part Part One for Teachers. By William W. Speer, Assistant Superintendent of Schools, Chicago. 154 pages. Boston and London : Ginn & Co. 1897.

This book is one of a series now in press. Some rather radical departures are proposed. The author thinks that the study of Arithmetic should be advanced from the science of *number* to that of the *definite relations of quantity*. The book gets the idea of *technical measurement* in early. Simple ratios are made the key to the solution of all problems.

The quotations in support of the theory of the book it seems to us are carried to excess. We doubt if the representation of *cents* by *lines*, p. 118, leads to clear ideas of relative values, and the "guessing" exercise on page 42 seems rather ludicrous. Notwithstanding minor objections the book is undoubtedly one of many excellencies, and the appearance of the other books of the series will be awaited with more than usual interest. J. M. C.

Mathematical Questions and Solutions. From the "Educational Times," with an Appendix. Edited by W. J. C. Miller, B. A. Vol. LXVI. 128 pages. Francis Hodgson, 89 Farringdon Street, E. C., London.

This valuable reprint contains solutions of 145 interesting problems. The price is 5s. 3d., postpaid. J. M. C.

Descriptive Geometry. Straight Line and Curves. By William J. Meyers, Professor of Mathematics in the State Agricultural College of Colorado, Fort Collins, Colo. Pages, 66 and several pages of excellent Plates. Printed by the Author.

The author has aimed to strike a mean between an abstract and difficult treatment and a diffuse and easy one. The method is based on the authors experience in his classroom. The book is well supplied with suitable exercises, and deserves careful examination on the part of teachers who have occasion to use an elementary text on this subject. J. M. C.

Introduction to Infinite Series. By William F. Osgood, Ph. D., Assistant Professor of Mathematics in Harvard University. 71 pages. Cambridge: Published by Harvard University. 1897.

This little book deals with an important topic. The presentation aims to acquaint the student with the nature and use of these series and to introduce him to the theory in such a way that at each step he sees precisely the question at issue. As aids to this end the work gives a variety of illustrations of applications of these series to computations in pure and applied mathematics, a full and careful exposition of the meaning and scope of the more difficult theorems, and the use of diagrams and graphical illustrations in the proofs. We have read these chapters with much interest and heartily commend the book to our readers as a valuable supplement to the treatment given in the usual text-books on the Differential and Integral Calculus. J. M. C.

Intermediate Algebra. University Tutorial Series. By William Briggs, M. A., F. C. S., F. R. A. S., and G. H. Bryan, Sc. D., F. R. S. 375 pages. Price, \$1.00. London: W. B. Clive. New York Depot: Hinds and Noble.

This is a work of more than ordinary merit. It is based on the treatise of Radhakrishnan, with such alterations and additions as were necessary to render it suitable to the wants of English and American students. The simple properties of Inequalities are treated at an early stage, the important properties of Zero and Infinity are adequately presented, and the theory of Quadratic expressions and Maxima and Minima are fully discussed. The chapters on Logarithms, Interest and Annuities are excellent in every detail. J. M. C.

Elementary and Constructional Geometry. By Edgar H. Nichols, A. B., of the Brown and Nichols School, Cambridge, Mass. Pages 138. New York: Longmans, Green & Co.

This book is very carefully written and is admirably adapted for the place it is designed to fill. The author uses the words *symparallel* and *antiparallel* for parallel lines.

that have the same and the opposite directions, respectively. A proper use of the blank pages at the end of the book for a summary of facts, definitions, and principles will add greatly to the usefulness of the book.

J. M. C.

The Science of Mechanics. A Critical and Historical Exposition of Its Principles. By Dr. Ernst Mach, Professor of Physics in the University of Prague. Translated from the Second German Edition by Thomas J. McCormack. With two hundred and fifty cuts and illustrations. Half morocco, gilt top, marginal analysis, exhaustive index. Price, \$2.50. Chicago: The Open Court Publishing Co.

This is one of the most readable works on Mechanics that has yet come to our notice. The rigorous and rigid mathematical reasoning is interspersed by many interesting historical facts concerning the application and development of the principles under consideration, as well as giving some pleasing accounts of the first discoveries of these principles. The work is in every way worthy the highest patronage, and no difference what text-book on Mechanics may be adopted for class use, Dr. Mach's book ought to be in use in every class to supplement the work of the regular course. The book is beautifully printed and handsomely bound.

B. F. F.

Elementary Mathematical Astronomy. With Examples and Examination Papers. By C. W. C. Barlow, M. A., B. Sc., Gold Medalist in Mathematics at London M. A.; Sixth Wrangler, and First Class First Division Part II. Mathematical Tripos, Cambridge, and G. H. Bryan, M. A., Sc. D., F. R. S., Smith's Prizeman, Fellow of St. Peter's College, Cambridge; Joint Author's of "Coördinate Geometry." 16mo. cloth. 442 pages. Price, \$1.50. London: W. B. Clive, University Correspondence College Press; and New York: Hinds and Noble.

Nothing but words of praise can be said of this work. A somewhat careful examination leads us to pronounce it the best in the particular field it is designed to cover. The book gives a most excellent description of the methods by which the structure of Scientific Astronomy has been built up with a very small amount of mathematical knowledge. The book should be the delight of every student of Astronomy. The arrangement is good, the diagrams clear and accurate, and the whole treatment excellent.

B. F. F.

The Open Court. A Monthly Magazine devoted to the Science of Religion, the Religion of Science, and the Extension of the Religious Parliament Idea. Edited by Dr. Paul Carus; T. J. McCormack, Assistant Editor; E. C. Hegeler, and Mary Carus, Associate Editors. Price, \$1.00 per year in advance. The Open Court Publishing Co., Chicago, Ill.

Among the articles in the August number are the following: The Religion of Islam, by Hyacinthe Loyson; History of the People of Israel, from the Beginning of the Destruction of Jerusalem, by Dr. C. H. Corniell, Professor of Old Testament History in the University of Königsberg; and the Evolution of Evolution, by Dr. Moncure D. Conway.

B. F. F.

The Cosmopolitan. An International Illustrated Monthly Magazine. Edited by John Brisben Walker. Price, \$1.00 per year in advance. Single number, 10 cents. Irvington-on-the-Hudson.

The Mathematical Gazette. Edited by F. S. Macauley, St. Paul's School, West Kensington, London. Issued three times a year, viz : in February, June, and October. Price, one shilling, net.

The June number contains an article on Spherical Geometry: I. Orthogonal Projection, by Prof. Alfred Lodge, M. A.; II. Stereographic Projection, by P. J. Heawood, M. A. Also Notes, Mathematical Notes, Examination Questions and Problems, Solutions, and Reviews and Notices. In "Notes" is an extended notice of Dr. Halsted's article on the "Non-Euclidean Geometry" which appeared in the March number of the MONTHLY.

B. F. F.

The Monist. A Quarterly Magazine devoted to the Philosophy of Science. Edited by Dr. Paul Carus; T. J. McCormack, Assistant Editor; E. E. Hegeler, and Mary Carus, Associate Editors. Price, \$2.00 per year in advance. Single number, 50 cents. The Open Court Publishing Co., Chicago, Ill.

The following articles appeared in the January, 1897, number: The Logic of Relatives, by Chas. S. Peirce; Man as a Member of Society, Introduction, by Dr. P. Topinard; The Philosophy of Buddhism, by Dr. Paul Carus; Panlogism, by E. Douglas Fawcett; The International Scientific Catalogue, and the Decimal System of Classification, by Thomas J. McCormack; and Literary Correspondence—France, by Lucien Arréat. B. F. F.

The American Monthly Review of Reviews. An International Illustrated Monthly Magazine. Edited by Dr. Albert Shaw. Price, \$2.50 per year in advance. Single Number, 25 cents. The American Monthly Review of Reviews Co., 13 Astor Place, New York City.

We are pleased to note that since our last issue this valuable magazine has changed its name to *The American Monthly Review of Reviews*, a more significant title than its former one.

The September number has a good deal to say about the Andrews incident and Brown University—not so much, as the editor remarks, on account of the personal interests involved in the case, as because of the far-reaching principles affecting academic life and liberty which have become matters at issue. A fair-minded and judicious estimate of President Andrews' services to Brown is given by a writer fully conversant with the facts, and the protest of the faculty is printed in full. The editorial comments on the awkwardness and needlessness of the situation are piquant and to the point.

Among the contributed articles in the September number are sketches of the three members of the new Nicaragua Canal Commission—Admiral Walker, Capt. O. M. Carter, Corps of Engineers, U. S. A., and Prof. Lewis M. Haupt. These sketches are illustrated with portraits, and serve to convey an idea of the peculiar qualifications possessed by these gentlemen for the task to which they have been appointed by President McKinley.

B. F. F.

The Arena. An Illustrated Monthly Magazine. Edited by John Clark Ridpath, LL. D. Price, \$2.50 per year in advance. Single number, 25 cents. Boston: The Arena Co.

Every true American citizen should read Dr. John Clark Ridpath's splendid paper, "The Cry of the Poor," and his "Open Letter" to President E. B. Andrews, which appear in the September number of the *Arena*. In them the Doctor has drawn a picture that appeals to every man and woman in our land who has God-given rights and privileges which, owing to the intervention of plutocratic influences, they are not allowed to enjoy.

"Why," asks the Doctor, "should the voice of the poor ever be heard rising like a wail from plantation, hamlet, and cityful? Why should there be seen standing at the

door of the homes of the American people the gaunt spectre—Want ?” “And why,” he again asks, “should we allow the voice of our teachers to be smothered by plutocratic powers ?” There may be those who sanction the conduct of Brown University in expelling Professor Andrews, but it is very evident that the editor of the *Arena* and the author of “The Bond and the Dollar” and “The True Inwardness of Wall Street” does not.

Among the other papers are “The Concentration of Wealth, its Cause and Results: Part I,” by Herman E. Taubeneck; “The Multiple Standard for Money,” by Eltweed Pomeroy; “The Future of the Democratic Party: A Reply,” by David Overmyer; “The Author of ‘The Messiah,’” by B. O. Fowler; “Anticipating the Unearned Increment,” by I. W. Hart; “Studies in Ultimate Society:” I. “A New Interpretation of Life,” by Laurence Gronlund; II. “Individualism vs Altruism,” by K. T. Takahashi; “General Weyler’s Campaign,” by Crittenden Marriott; the “Plaza of the Poets,” “Book Reviews,” and “The Editor’s Evening,” make up this bright and instructive number.

CORRECTIONS AND REVISIONS OF THE ARTICLE

“ON THE CIRCULAR POINTS AT INFINITY,”

MAY MONTHLY, PP. 132—145.

(P.=page ; l. κ = κ th line from above ; lb. κ = κ th line from below.)

P. 132, l. 1 of the article, read Coördinate for Coordinate ; l. 2, Cartesian for Cartesion. P. 133, (4) and (4)' for (*A*) and (*A*)' ; l. 19—21, finish parenthesis ; l. 23, = for —. P. 134, l. 2, vanishes for vanishes ; interchange lines 14 and 15. P. 135, l. 4, bring “all true” down to l. 6 ; l. 12, add “and” after “infinity” ; l. 19 and 23, coördinates for coöordinates ; l. 25, coördinates for coödinates. P. 136, l. 4, add exponent 2 to numerator ; l. 6, ρ^2 here taken equal to 1, might have been retained in the numerator. If retained, (21) p. 140 would contain ρ^4 instead of ρ^2 , but this would have no effect on the final result (22). Whether ρ^2 is retained or not, (14) would have to be made homogeneous in all the coördinates involved, as well as (21), for practical uses, since this is required of all such equations. (14) can be made homogeneous by the use of the solution of (4). l. 9, $+\sin\alpha_1\sin\alpha_2$ for $-\sin\alpha_1\sin\alpha_2$; $-\kappa_1\kappa_2\cos C$ for $\kappa_1\kappa_2\cos C$; lb. 6, *c* for *C*. P. 137, l. 16, *r* for γ . P. 138, lb. 4, $x_2'^2$ for $x_1'^2$; lb. 5, *r* for γ ; lb. 8, $\cos C$ for $\cos B$; lb. 9, $x_1'^2$ for x_1^2 . P. 139, l. 5, κ_3^2 for x_3^2 and for κ_3 ; l. 12, x_3x_1 for x_3x_1 . P. 140, lb. 2, $(x'\xi\xi')^2$ for $(x'\xi\xi)^2$. P. 141, l. 14, x' for x ; l. 17, $\kappa_2^2u_2^2 + \kappa_3^2u_3^2$ for $\kappa_2u_2^2 + \kappa_3u_3^2$; lb. 1, $x_2'^2$ for x_2' ; in foot note, “Nicht-Euklidische Geometrie” for “Nicht-Euclidische Geometry.” P. 142, l. 9, $-iA$ for $-iB$; l. 11, *two lines* for *the lines* ; l. 13 and 14, *x* and *y* might be interchanged, though this is not necessary ; the other angle between the two lines would be given ; l. 15, The double ratio of these is : Taking them in the order named, using etc. ; l. 18, *s* for 5 ; l. 19, $+s\lambda'$ for $+s\lambda$. P. 144, l. 11, $\tan\psi$ for ψ ; slopes for tangents would be better ; l. 12, it is necessary and sufficient that the purely imaginary part of *x* should become indefinitely great ; l. 18, the German word “quadrupel” is here appropriated ; l. 23, ± 1 for $\pm l$; l. 27, is for in ; in foot note, * for †. P. 145, l. 4, $\Sigma xx.\Sigma x'x'$ for $\Sigma xx'.\Sigma x'x$ in numerator and denominator ; $(\Sigma xx')^2$ for $\Sigma xx'$ under radical in denominator ; l. 5, two points for the points ; l. 7, Σxx for $\Sigma xx'$.